

CLAIMS

1. An information recording medium comprising a plurality of recording layers to record therein information, wherein

5 at least one of the plurality of recording layers has a management information area to record therein recording speed management information for defining a recordable maximum speed when the information is recorded.

2. The information recording medium according to claim 1, wherein the
10 recording speed management information includes recording speed information which indicates the recordable maximum speed for each of the plurality of recording layers.

3. The information recording medium according to claim 2, wherein the
15 recording speed management information further includes recording condition information which indicates an optimum recording condition for each of the plurality of recording layers, in a form corresponding to the recording speed information.

20 4. The information recording medium according to claim 3, wherein the recording speed management information has a table on which the recording speed information and the recording condition information are registered for each of the plurality of recording layers, and which has an index.

25 5. The information recording medium according to claim 1, wherein recording is performed on said information recording medium by an

information recording apparatus in which recording condition information which indicates an optimum recording condition for each of a plurality of recordable maximum speeds is registered, and

the recording speed management information includes recording speed information which indicates the recordable maximum speed for each of the plurality of recording layers.

6. The information recording medium according to claim 1, wherein recording is performed on said information recording medium by an information recording apparatus in which (i) recording speed information which indicates the maximum speed and (ii) recording condition information which indicates an optimum recording condition for each of a plurality of recordable maximum speeds are registered, for each identification information for identifying respective one of a plurality of information recording media, and

the recording speed management information includes the identification information for identifying said information recording medium.

7. The information recording medium according to claim 1, wherein the recording speed management information is at least partially recorded from the beginning of production of said information recording medium, as pre-information of said information recording medium.

8. The information recording medium according to claim 1, wherein the recording speed management information is at least partially recorded or updated, as written-once or rewritable information.

9. The information recording medium according to claim 1, wherein the management information area is disposed nearer an inner circumference in a top layer out of the plurality of recording layers, and includes a portion in which the recording speed management information with respect to the plurality of recording layers is collectively recorded.

10. The information recording medium according to claim 1, wherein the management information area is disposed in each of the plurality of recording layers.

11. The information recording medium according to claim 1, wherein the plurality of recordable maximum speeds are defined to be higher speeds on an upper layer side out of the plurality of recording layers.

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12. An information recording apparatus for recording information onto an information recording medium comprising a plurality of recording layers to record therein the information, wherein at least one of the plurality of recording layers has a management information area to record therein recording speed management information for defining a recordable maximum speed when the information is recorded,

said information recording apparatus comprising:

a reading device for reading the recording speed management information from the management information area;

25 a recording speed setting device for setting a recording speed corresponding to a recording target layer, in a range of a recordable maximum

speed corresponding to the recording target layer in which the information is to be recorded, out of the recordable maximum speed for each of the plurality of recording layers which is defined by the read recording speed management information; and

5 a recording device for recording the information into the recording target layer at the set recording speed.

13. The information recording apparatus according to claim 12, wherein
the recording speed management information includes recording
10 speed information which indicates the recordable maximum speed for each of
the plurality of recording layers and further includes recording condition
information which indicates an optimum recording condition for each of the
plurality of recording layers, in a form corresponding to the recording speed
information, and

15 said recording speed setting device sets the recording speed and the
recording condition corresponding to the recording target layer, on the basis of
the recording speed information and the recording condition information
which is read as at least one portion of the recording speed management
information.

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14. The information recording apparatus according to claim 12, wherein
the recording speed management information includes recording
speed information which indicates the recordable maximum speed for each of
the plurality of recording layers,

25 said information recording apparatus is further provided with a
storing device in which recording condition information which indicates an

optimum recording condition for each of a plurality of recordable maximum speeds is registered,

said reading device reads the recording speed information, as at least one portion of the recording speed management information, and

5 said recording speed setting device sets the recording speed and the recording condition, on the basis of (i) the read recording speed information and (ii) a recording condition information which corresponds to the read recording speed information, out of the recording condition information which is registered in said storing device.

10 15. The information recording apparatus according to claim 12, wherein the recording speed management information includes identification information for identifying said information recording medium,

15 said information recording apparatus is further provided with a storing device in which (i) recording speed information which indicates the maximum speed and (ii) recording condition information which indicates an optimum recording condition for each of a plurality of recordable maximum speeds are registered, for each identification information for identifying respective one of a plurality of information recording media,

20 said reading device reads the identification information, as at least one portion of the recording speed management information, and

25 said recording speed setting device sets the recording speed and the recording condition, on the basis of a recording speed and a recording condition which correspond to the read identification information, out of the recording speed information and the recording condition information which are registered in said storing device.

16. An information recording method of recording information onto an information recording medium comprising a plurality of recording layers to record therein the information, wherein at least one of the plurality of recording layers has a management information area to record therein recording speed management information for defining a recordable maximum speed when the information is recorded,

said information recording method comprising:

a reading process of reading the recording speed management information from the management information area;

a recording speed setting process of setting a recording speed corresponding to a recording target layer, in a range of a recordable maximum speed corresponding to the recording target layer in which the information is to be recorded, out of the recordable maximum speed for each of the plurality of recording layers which is defined by the read recording speed management information; and

a recording process of recording the information into the recording target layer at the set recording speed.